

ANNUAL



REPORT

NORTHGATE

E X P L O R A T I O N L I M I T E D

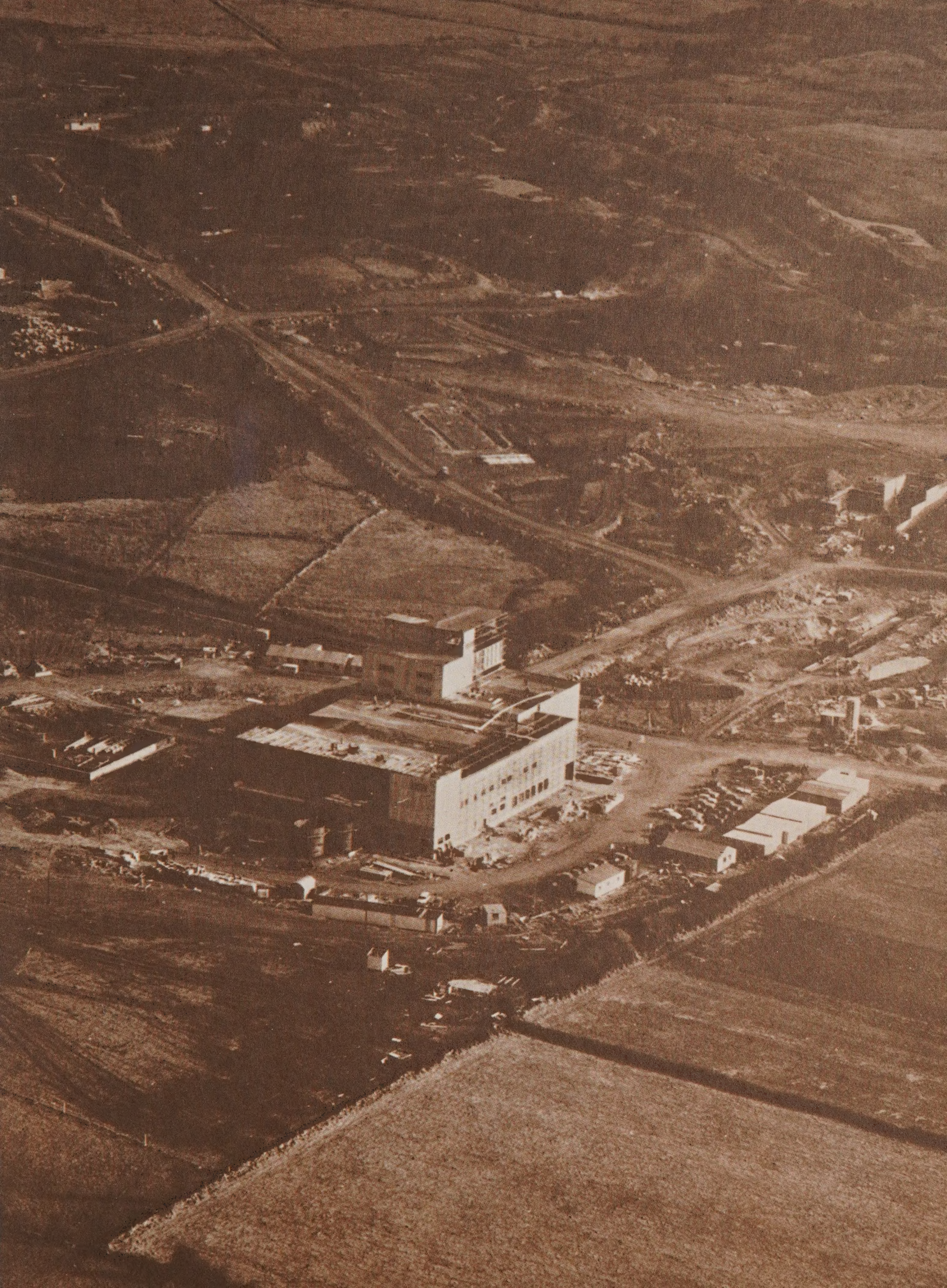
FOR THE YEAR ENDED DECEMBER 31, **1964**



N O R T H G A T E E X P L O R A T I O N L I M I T E D

NORTHGATE

*Aerial view of mill building looking southeast,
Foundations for slimes thickeners complex and
crusher building are in background to the right; mine
open pit at centre, and tailings disposal at left.
Foundation for dryer and concentrate storage
building is at left of mill building.*



NORTHGATE EXPLORATION LIMITED

OFFICERS

Patrick J. Hughes	-	-	-	-	-	-	President
Robert E. Fasken	-	-					Executive Vice-President
Matthew Gilroy	-	-	-	-	-	-	Vice-President
G. Warren Armstrong	-	-	-	-	-	-	Secretary
Murray K. Pickard	-	-	-	-			General Manager

BOARD OF DIRECTORS

G. Warren Armstrong	-	-	-	-	Orono, Ontario
Dr. Duncan R. Derry	-	-			Port Credit, Ontario
* Robert E. Fasken	-	-	-		Port Credit, Ontario
Matthew Gilroy	-	-	-	-	Dublin, Ireland
William N. Hovey	-	-	-	-	Toronto, Ontario
Patrick J. Hughes	-	-	-	-	Dublin, Ireland
* Dr. William F. James	-	-	-		Toronto, Ontario
John K. McCausland	-	-	-	-	Toronto, Ontario
* George T. Smith	-	-	-	-	Toronto, Ontario

* Members of the Executive Committee

AUDITORS

Gunn, Roberts and Co.
Chartered Accountants, Toronto, Ontario

TRANSFER AGENT

Crown Trust Company
Toronto, Ontario

EXECUTIVE AND HEAD OFFICE

Suite 1905, Seven King Street East
Toronto 1, Ontario

**NORTHGATE EXPLORATION
LIMITED**

45TH

Annual Report to the Shareholders

For the year ended December 31st

1 9 6 4

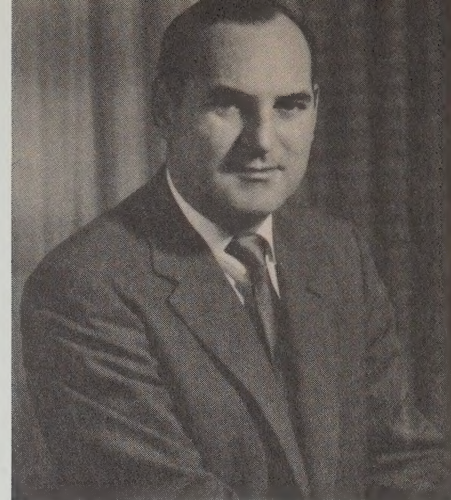


DIRECTORS' REPORT

To the Shareholders,
NORTHGATE EXPLORATION LIMITED:

The year 1964 was an important one for your company and its wholly-owned subsidiary, Irish Base Metals Limited. The highlights of the year were the completion of financing arrangements to bring the mine at Tynagh, Ireland, to scheduled production in 1965; and the commencement of construction of the 2,000-ton per day capacity concentrator and ancillary facilities. Other 1964 developments included the completion of metallurgical tests, and the signing of contracts covering the sale of the total concentrate output of the mine for the initial five years of production.

Southwest elevation of mill building, hub of the concentrator complex now under construction at the Tynagh mine site, and scheduled for completion August 31, 1965. A surface plan of the component buildings, open pit and tailings disposal area, is shown on the page immediately following the Financial Statements.



PATRICK J. HUGHES, *President*

It was a year during which your company moved forward to its production objective — an undertaking that began with the initial drill discovery of the lead-zinc-silver deposit late in 1961. The following are the principal items of interest to shareholders:

Financial

The total estimated cost to construct the concentrator and related facilities, and to complete the preparation of the mine for open pit production, is \$10,800,000. This amount includes allowances of \$1,000,000 for start-up working capital and \$400,000 for initial inventory. A fixed-price contract for the construction project was awarded to Bechtel Overseas Corporation, with the contract price within the limits of original cost projections. Scheduled completion date for this project is August 31, 1965.

The following financing arrangements were made to finance the Tynagh mine to production:

Northgate Exploration Limited sold \$6,000,000 (Canadian) principal amount of 6½% Collateral Trust Debentures, together with 240,000 common shares. These debentures and common shares were privately placed with institutional investors by Wood, Gundy & Company Limited, and Equitable Securities Canada Limited, both of Toronto, Canada.

Of the proceeds from the foregoing sale of debentures, \$5,115,000 was set aside for the pur-

chase of \$6,000,000 (Canadian) principal amount of the Series 'A' First Mortgage Sinking Fund Bond of the wholly-owned subsidiary, Irish Base Metals Limited. As of December 31, 1964, Northgate Exploration Limited had purchased \$5,300,000 principal amount of these Series 'A' Bonds for \$4,518,250, with funds remaining in trust to complete the purchase of an additional \$700,000 of these bonds. This purchase was completed in January, 1965.

In addition to the Series 'A' First Mortgage Sinking Fund Bonds sold to the parent company, Irish Base Metals Limited has arranged the sale of up to \$6,500,000 (U.S.) principal amount of the Series 'B' Bonds. These are to be purchased in varying proportions as, and only to the extent that, funds are required, by a group consisting of three European smelting firms: Societe Generale des Minerais S. A. of Brussels, Belgium; Metallgesellschaft A. G. of Frankfurt, Germany; and Societe Miniere et Metallurgique de Penarroya, S. A. of Paris, France; and The British Metal Corporation of London, England, in an amount up to \$5,500,000. The

Midland and International Banks Limited, of London, England, will purchase the remaining \$1,000,000 if required. To date, \$2,500,000 of the Series 'B' Bonds have been purchased in accordance with this arrangement.

The foregoing financing arrangements adequately provide for the estimated costs and contingencies to bring the mine into production as scheduled, including allowances for start-up working capital and inventory. Actual project costs to date are within the range of forecasts.

Construction Project

The concentrator complex now under construction at the Tynagh mine site will have a rated capacity of 2,000 tons per day, or approximately 700,000 tons per year. At capacity operations, the output rate of concentrates is estimated to be about 150,000 tons annually.

Engineering plans for the concentrator and related installations at the mine site were approved by Galway County Council on July 18, 1964.

An aerial view of the Port of Galway. The site for the concentrate storage and ship-loading facility of Irish Base Metals Limited is the cleared sector at the lower right.



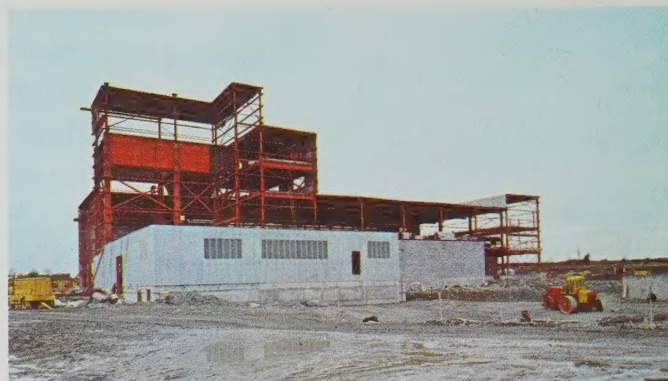
Approval was also obtained from the Harbour Commissioners and from the Department of Public Works for the construction of the concentrate storage and ship-loading facility at the Port of Galway. Bechtel Overseas Corporation awarded the first contract for mine site preparation and clearance during July, 1964. Foundation test drilling for the Galway installation was completed in the same month.

Construction activity gained momentum during August with excavation and fill work completed for the mill building, and surfacing of permanent access roads was commenced and substantially completed. Piling work for the mill building began August 10th, employing eight pile rigs to facilitate commencement of concrete foundation work the following month. By September, site preparation was 90% complete and piling for the mill building, the dryer and slimes thickeners buildings was finished. Erection of the structural steel on the mill building commenced October 14th, and was 99% complete by the end of December, at which time roofing and cladding were well under way.

By the end of December there was a work force of 130 employed both by Bechtel and the various sub-contractors. This was increased to a total of 255 men in February when construction was simultaneously in progress at both the mine site and the installation at the Port of Galway.

As most of the equipment and machinery required for pit-stripping and dyke construction at the tailings disposal site will also be used in actual mining operations, this phase of the project is being carried out by Irish Base Metals Limited. Pit-stripping and mine development work and construction of pit access roads commenced during August.

Progress in the overburden removal, dyke construction for tailings disposal, and general open-pit



Mill building looking northwest.



Plant site looking north across the slimes thickeners in foreground.

mine preparations, continues on schedule. At the end of February, there was a work force of about 40 men employed in this project being carried out by Irish Base Metals Limited. In total, close to 300 men are now employed at the various phases of the construction project at the mine site and the Port of Galway installation.

The pictures contained in this Annual Report were taken during the month of February, and show the concentrator complex at various stages of construction. Mechanical installation at the mill building and slimes thickeners has been in progress since February and work is progressing according to schedule.

At the Port of Galway, concrete block-work for the service building is completed and excavation for the storage building foundations is now under way. A water supply line, with a terminus 3½ miles away at Ballycahill, is now being laid with deliveries of the 20,000 lineal feet of pipe completed in February. A contract for the water supply intake pumphouse was previously awarded.

In order to make possible the completion of the 110,000 volt electric power supply system by June, Irish Base Metals Limited has undertaken, on a reimburseable basis, the construction of certain facilities for the Electrical Supply Board. Construction work on this phase commenced in December. The National Building Agency is now constructing staff housing on a building site near Loughrea.

General

In addition to the Tynagh project, Irish Base Metals Limited is carrying out an extensive exploration program in various Counties in Ireland. Northgate Exploration Limited also holds an ap-

preciable share interest in Gortdrum Mines Limited which is currently developing a copper property near the Town of Tipperary.

Your Directors acknowledge the support given by the technical personnel and employees of the company. This support has contributed in great measure to the progress made in the present construction project at Tynagh, Ireland. The Board also expresses appreciation for the co-operation and assistance of officials of the Government of Ireland, local municipal governments and utility boards, and others who have expedited the progress of this undertaking.

On behalf of the Board of Directors,

Pat. J. Hughes.

President.

Toronto, Canada
March 31, 1965



CONSOLIDATED BALANCE SHEET — December 31, 1964

(with comparative figures at December 31, 1963)

ASSETS

CURRENT ASSETS

Cash
Interest bearing deposits with brokers
Accounts receivable and accrued interest
Prepaid expenses

FUNDS HELD BY TRUSTEES (note 5)

Cash and short term securities at cost

FIXED ASSETS

Construction in progress, buildings, machinery and equipment at cost
Land in Ireland at cost
Mining claims in Canada at nominal value

OTHER ASSETS AND DEFERRED CHARGES

Exploration, development and administrative expenditures deferred
Excess of cost of shares in subsidiary company over book value of underlying assets at date
acquisition
Debt discount and expenses, less amortization
Shares, advances and participations at cost less amounts written off
Improvements to leased premises at cost
Organization expenses

LIABILITIES

CURRENT LIABILITIES

Accounts payable and accrued liabilities
Notes payable on equipment purchases, due within one year
Accrued interest on collateral trust debentures
Debenture payable, 6½ % — U.K. £ 167,500

LONG TERM DEBT

6½ % Collateral trust debentures due May 1, 1971 (note 1)
Notes payable on equipment purchases, due 1966 and 1967

SHAREHOLDERS' EQUITY

Capital stock (notes 1 and 3)
 Authorized — 5,000,000 shares of \$1 each
 Issued — 4,979,200 shares (1963 — 4,599,200 shares)
Contributed surplus (premium less discount on shares)

Deduct deficit

NORTHGATE EXPLORATION LIMITED

(Incorporated under the laws of the Province of Ontario)

AND ITS WHOLLY OWNED SUBSIDIARY COMPANY IRISH BASE METALS LIMITED

1964	1963
460,960	\$ 105,488
83,383	142,832
44,335	7,640
588,678	13,877
	269,837
1,851,966	
3,361,559	322,747
219,509	149,819
1	1
3,581,069	472,567
3,055,815	2,185,831
983,326	983,326
587,742	
23,587	140,261
27,796	27,445
10,051	10,051
4,688,317	3,346,914
10,710,030	\$4,089,318
198,982	\$ 130,282
85,425	
65,000	505,850
349,407	636,132
6,000,000	
168,246	
6,168,246	
4,979,200	4,599,200
166,951	(253,049)
5,146,151	4,346,151
953,774	892,965
4,192,377	3,453,186
10,710,030	\$4,089,318



AUDITORS' REPORT

To the Shareholders of
NORTHGATE EXPLORATION LIMITED:

We have examined the consolidated balance sheet of Northgate Exploration Limited and its subsidiary company, Irish Base Metals Limited, as at December 31, 1964 and the consolidated statements of exploration, development and administrative expenditures deferred and deficit for the year then ended. Our examination of the financial statements of Northgate Exploration Limited (the parent company) included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances. We have relied on the reports of the auditors who have examined the financial statements of the subsidiary company, Irish Base Metals Limited.

In our opinion the accompanying consolidated balance sheet and consolidated statements of exploration, development and administrative expenditures deferred and deficit present fairly the financial position of the companies as at December 31, 1964 and the results of their operations for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

We have also examined the accompanying consolidated statement of source and application of funds for the year ended December 31, 1964. In our opinion the statement presents fairly the sources and applications of funds for the year.

GUNN, ROBERTS AND Co.,
Chartered Accountants.

Toronto, Canada
February 1, 1965

Approved on behalf of the Board:

R. E. FASKEN, Director.

G. T. SMITH, Director.

CONSOLIDATED STATEMENT OF EXPLORATION, DEVELOPMENT AND ADMINISTRATIVE EXPENDITURES DEFERRED

	Deferred at Jan. 1, 1964	Expenditures in 1964	Deferred at Dec. 31, 1964
Drilling and assaying	\$ 553,984		\$ 553,984
Removal of overburden and pit development	207,719	\$ 72,318	280,037
Metallurgical research, test plant operation and surveys	222,524	38,121	260,645
General expenses at the property	359,240	87,033	446,273
Mine management, engineering, geological and mine office expenses	347,806	226,941	574,747
Outside exploration	64,317	12,915	77,232
Administrative and general expenses	390,241	234,831	625,072
Interest on collateral trust debentures		230,082	230,082
Amortization of debt discount and expenses	40,000	61,856	101,856
Interest earned		(94,113)	(94,113)
Expenditures deferred	<u>\$2,185,831</u>	<u>\$ 869,984</u>	<u>\$3,055,815</u>

CONSOLIDATED STATEMENT OF DEFICIT

— For the year ended December 31, 1964

Deficit January 1, 1964	\$ 892,965
Deduct profit on sale of shares in other mining companies	59,657
	<u>833,308</u>
Add amount written off shares in and advances to other mining companies	120,466
Deficit December 31, 1964	<u>\$ 953,774</u>

CONSOLIDATED STATEMENT OF SOURCE AND APPLICATION OF FUNDS

— For the year ended December 31, 1964

SOURCE OF FUNDS

Issue of \$6,000,000 6½ % collateral trust debentures together with 240,000 shares of capital stock (note 1)	\$5,590,402	
Issue of 140,000 shares of capital stock pursuant to stock options (note 3)	560,000	
Sale of shares in other mining companies	61,265	\$6,211,667

APPLICATION OF FUNDS

Construction in progress and acquisition of machinery and equipment	3,038,812	
Less notes payable on equipment purchases due in 1966 and 1967	168,246	
	<u>2,870,566</u>	
Purchase of land	69,690	
Exploration, development and administrative expenditures (less amortization of debt discount and expense \$61,856)	808,128	
Payment of debenture issued in 1963 for temporary financing	505,850	
Other items	5,751	4,259,985

INCREASE IN FUNDS HELD	<u>\$1,951,682</u>
------------------------------	--------------------

Funds held consist of current assets and funds held by trustees, less current liabilities (other than debenture issued for temporary financing).

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 1964

1. FINANCING ARRANGEMENTS —

TYNAGH PROPERTY, IRELAND

In order to bring the Tynagh property into production, arrangements for financing were made in 1964 as follows:

(a) The company issued \$6,000,000 6½% collateral trust debentures, due May 1, 1971, together with 240,000 shares of the company's capital stock, for a net consideration of \$5,700,000. Of the proceeds of the debenture issue, \$585,000 was set aside for payment of interest on the debentures to November 1, 1965 and \$5,115,000 was set aside for the purchase of \$6,000,000 6½% first mortgage sinking fund bonds, series A, due May 1, 1971, of the Irish subsidiary company. The parent company's collateral trust debentures are collaterally secured by an equivalent principal amount of series A bonds of the Irish subsidiary company.

To December 31, 1964 \$5,300,000 of the subsidiary company's series A bonds had been purchased for \$4,518,250 and at that date funds were held in trust for the purchase of an additional \$700,000 of the bonds.

(b) The Irish subsidiary company has arranged to sell at face value a maximum of U.S. \$6,500,000 6¼% first mortgage sinking fund bonds, series B, due May 1, 1971, to be issued, after all series A bonds have been issued, when required for the company's development program.

(c) Sinking fund provisions of the bonds issued by the Irish subsidiary company require a mandatory payment in each of the years 1967 to 1970 of \$1,200,000 on the series A bonds and 20% of the amount of series B bonds issued. In addition, further amounts may be payable based on production and cash flow. The monies received on retirement of the series A bonds owned by Northgate Exploration Limited are to be applied to the retirement of an equivalent principal amount of the parent company's collateral trust debentures.

(d) Funds held by trustees and to be received on sale of series B bonds of the Irish

subsidiary company are more than adequate to meet the estimated cost of \$6,720,000 to be incurred after December 31, 1964 to bring the Tynagh property into production.

(e) The subsidiary company has entered into agreements for the sale of the concentrates produced from the Tynagh Mine in the first five years of production.

2. CURRENCY CONVERSION

Current assets and current liabilities of the Irish subsidiary company are converted to Canadian dollars at the rate of exchange prevailing at December 31, 1964. Other assets and deferred charges are converted at the rates prevailing when funds for the expenditures were provided.

3. CAPITAL STOCK

In addition to the 240,000 shares issued at par value accompanying the company's 6½% collateral trust debentures (note 1), 140,000 shares were issued in 1964 at \$4 per share for \$560,000 cash.

At December 31, 1964 there were 10,000 shares under option to an employee at \$4 per share expiring in 1968.

4. CONTINGENT LIABILITIES

Actions have been instituted against the companies as follows:

(a) by three former employees claiming a finders' fee for the location of the Tynagh property in Ireland; and

(b) by a stripping contractor claiming \$223,000 for services and for damages.

The company has denied any liability in these matters except for certain overburden removal costs for which \$18,000 is included in accounts payable and accrued liabilities.

5. FUNDS HELD BY TRUSTEES

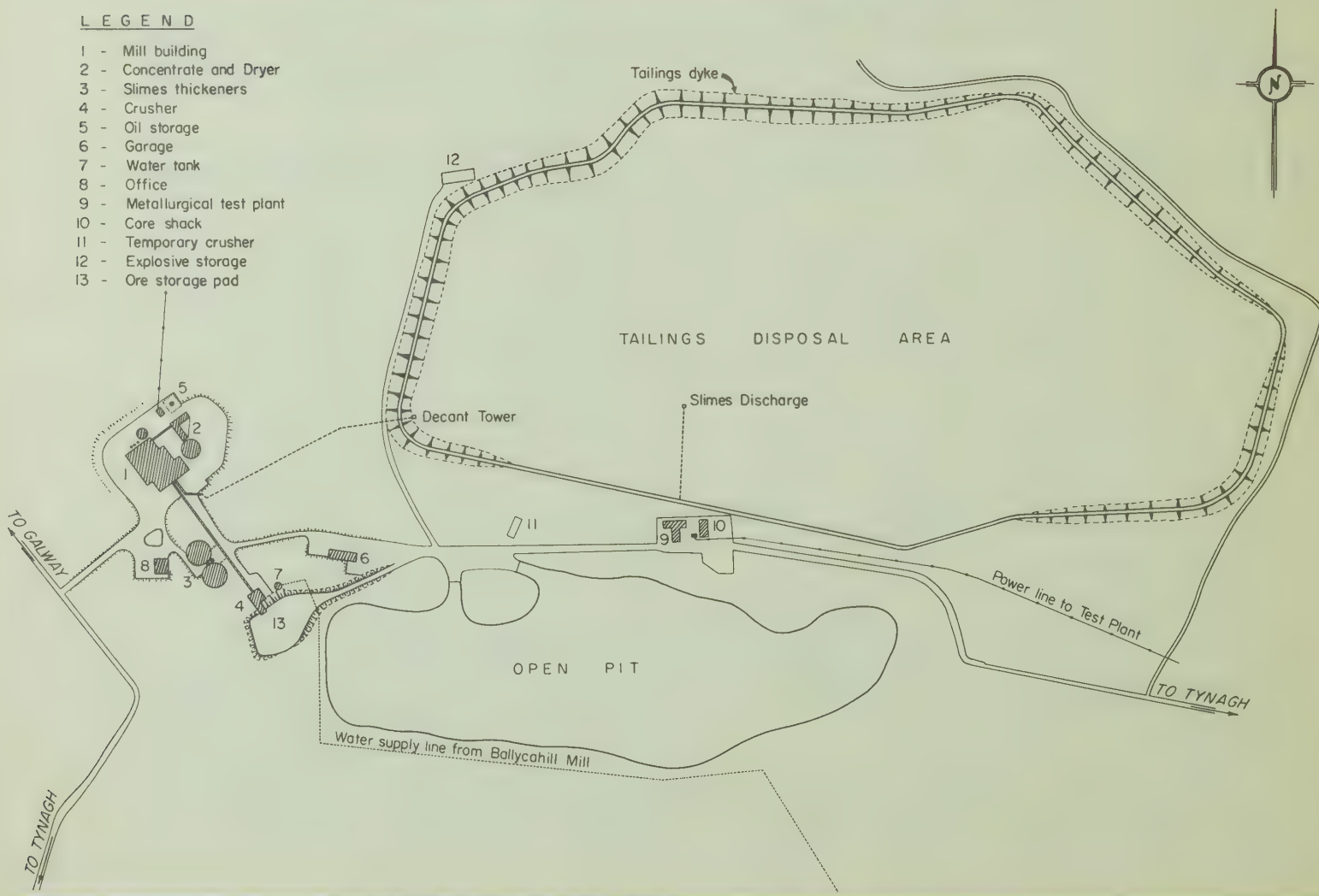
Funds are held by trustees for payment of interest to November 1, 1965 on the company's collateral trust debentures, to complete the purchase of the Irish subsidiary company's series A bonds and for payment of costs of bringing the Tynagh property into production.

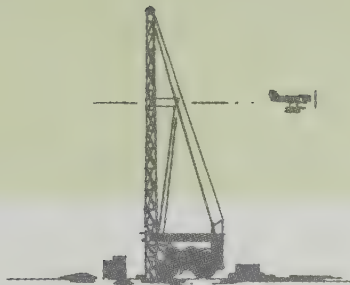


The aerial view, which is looking almost due east across the concentrator complex with the mine open pit at the upper right hand, can be positioned as being at right angle across the sketch below, from left to right.

LEGEND

- 1 - Mill building
- 2 - Concentrate and Dryer
- 3 - Slimes thickeners
- 4 - Crusher
- 5 - Oil storage
- 6 - Garage
- 7 - Water tank
- 8 - Office
- 9 - Metallurgical test plant
- 10 - Core shack
- 11 - Temporary crusher
- 12 - Explosive storage
- 13 - Ore storage pad





From the discovery drill hole . . . to production

Nearly four years separates these two events —

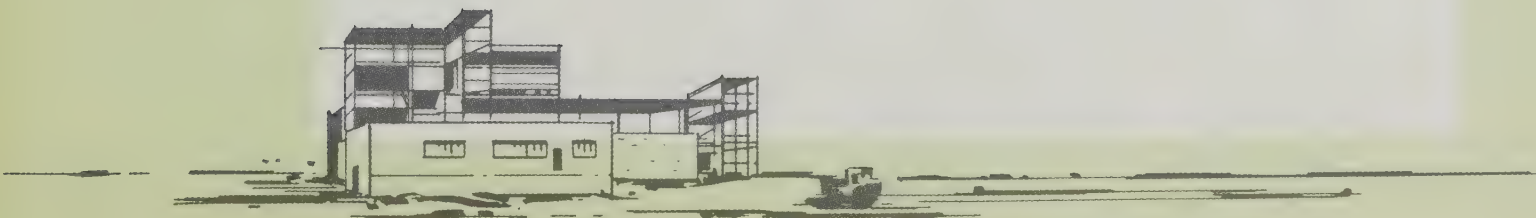
Churn Drill Hole No. One, which gave the first conclusive indication of the lead-zinc-silver deposit at Tynagh, County Galway, Ireland, was drilled in December, 1961. On August 31, 1965, the new 2,000-ton per day capacity concentrator complex is scheduled to commence production. There is a story in between, and one that precedes it.

The story of the Tynagh discovery began with the incorporation of Irish Base Metals Limited on August 11, 1959, to engage in the exploration for minerals in Ireland. The company obtained a number of prospecting licenses from the Irish Department of Industry and Commerce, covering an area in excess of 200 square miles, comprising various tracts in Counties Clare, Donegal, Galway and Kerry.

Reconnaissance prospecting and examinations were carried out on these prospecting licenses, and as a result activity centered on two main locations, in Counties Clare and Galway. During 1960, a brief geochemical and geological reconnaissance examination was made of the Tynagh property. In September of 1961, further geochemical tests were carried out. These returned high readings in lead, zinc with some copper values. The implications of this sampling were further confirmed by geophysical surveys employing both the induced polarization and electromagnetic methods. The conclusive evidence of the underlying deposit was provided by churn and diamond drilling, ultimately outlining reserves estimated at more than seven million tons.

The complex character of the ore necessitated extensive and detailed metallurgical testing, conducted at laboratories in the United States, Canada, Sweden and France. Results from these tests, combined with experience gained in the operation of the 15-ton per day pilot plant constructed on the property early in 1963, confirmed that the lead, zinc and silver could be profitably recovered in saleable concentrates. During the course of this work, production plans were in progress and arrangements were made for the \$11 million-plus of senior financing to bring the mine into production.

This, briefly, is the story of the undertaking by Irish Base Metals Limited at Tynagh, Ireland.



IRISH BASE METALS LIMITED

Bechtel Overseas Corporation was awarded the contract for the construction of the concentrator and ancillary facilities, including the concentrate storage and ship-loading facility at the Port of Galway. The following picture sequence, taken during February, 1965, shows a portion of this complex.

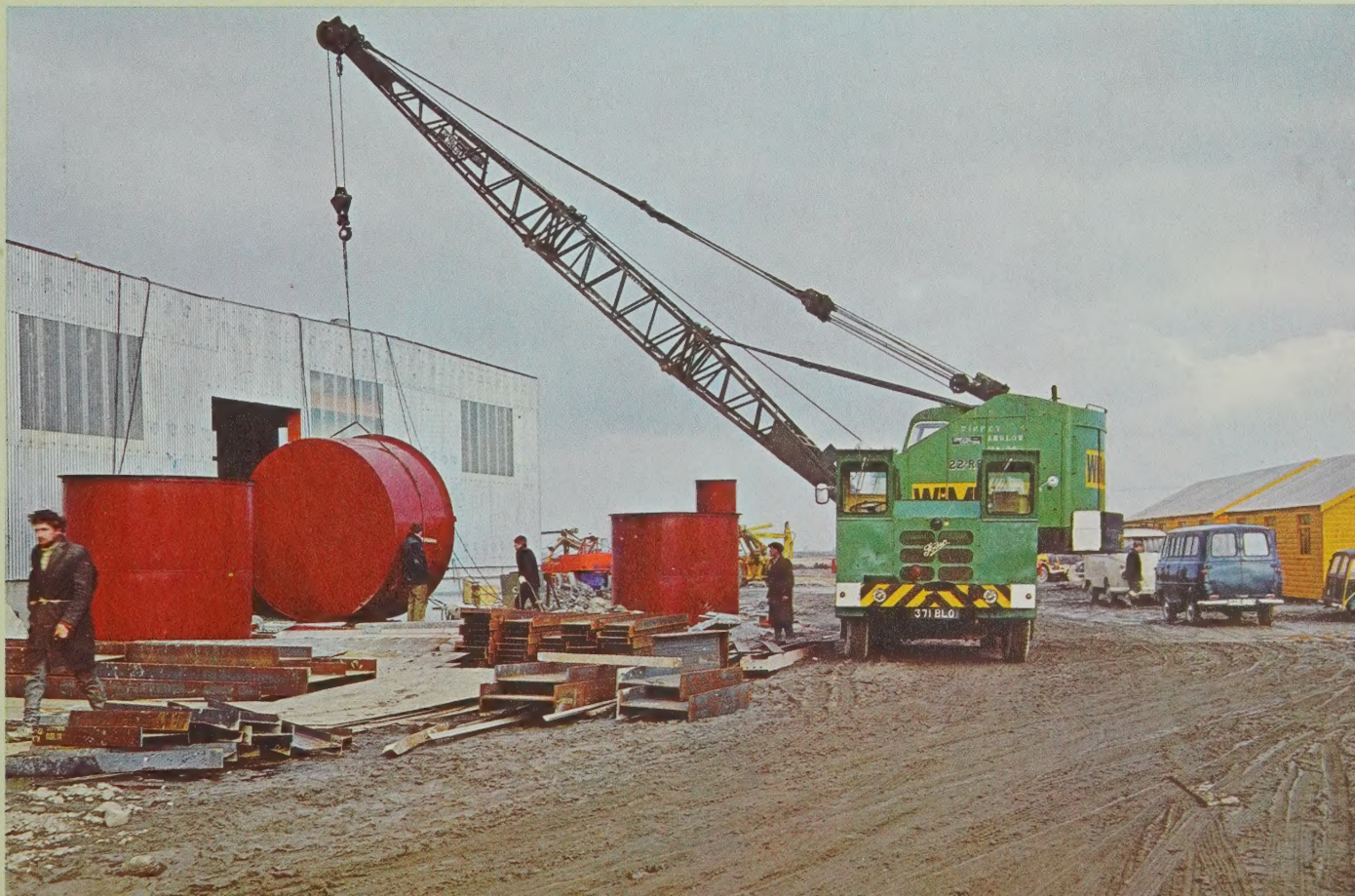


The ore crushing plant, located near the mine open pit, southeast from the main mill building. Concrete foundation work is being completed in readiness for the erection of structural steel, etc.



Some of the mobile equipment purchased by the company to carry out pit-stripping, dyke construction, access roads to the mine open pit. This phase of the construction project is being handled by Irish Base Metals Limited.

One of the steel process tanks that will form part of the slimes thickeners unit being lifted by crane. Mill building is in background.



This interior view of the mill building shows some of the reinforced concrete pillars required to support the heavy equipment.



IRISH BASE METALS LIMITED

REGISTERED OFFICE

162 Clontarf Road, Dublin 3, Ireland

MINE OFFICE

Tynagh, County Galway, Ireland

OFFICERS

PATRICK J. HUGHES Chairman of the Board
S. P. BOLAND Secretary
MURRAY K. PICKARD General Manager

DIRECTORS

G. W. ARMSTRONG, Northgate Exploration Limited, Toronto, Canada
W. CASPER Metallgesellschaft A. G., Frankfurt, Germany
A. DE JAER Societe Generale des Minerais S.A., Brussels, Belgium
D. R. DERRY Northgate Exploration Limited, Toronto, Canada
R. E. FASKEN Northgate Exploration Limited, Toronto, Canada
M. GILROY Northgate Exploration Limited, Toronto, Canada
W. N. HOVEY, Equitable Securities Canada Limited, Toronto, Canada
W. F. JAMES James, Buffam & Cooper, Toronto, Canada
J. K. McCausland Wood, Gundy & Company Limited,
Toronto, Canada
J. V. McParland Newry, County Down, Northern Ireland
G. T. SMITH Northgate Exploration Limited, Toronto, Canada
M. TREBUCQ ... Societe Miniere et Metallurgique de Penarroya, S.A.,
Paris, France
G. H. WHITE The British Metal Corporation Limited,
London, England
H. S. WHITE The Toronto-Dominion Bank, London, England

SUBSTITUTE DIRECTORS

P. HARRINGTON Dublin, Ireland
P. J. LENIHAN Athlone, Ireland
M. V. O'BRIEN Dublin, Ireland
A. M. R. SYLVESTER London, England



